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ABSTRACT

The socioeconomic consequences of qualitative variations in educational experiences are evaluated for a sample of young adult males (N=525) who were first surveyed in 1955 as high school sophomores and followed up in 1970. Models of institutional influence and of within-school processes are developed for both secondary and post-secondary education to integrate and refine the literature on school effects and returns to schooling. Rather large occupational status and earnings differentials are associated with gross school-to-school differences and with qualitative differences in educational experiences within institutions. Secondary school characteristics and experiences weigh particularly upon the market outcomes of youth who terminated formal schooling at high school graduation. The use of traditional quantitative indices of schooling (such as years of school completed or certification levels) in assessing the market consequences of investments in education needs to be supplemented by information on qualitative variations in educational experiences. Additionally, the likelihood that school experiences may have quite different implications for selected target populations deserves further consideration. The simplistic assumption implicit in much of the school effects literature that institutional effects are homogeneous may actually mask quite important consequences for certain students. (Author)

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SCHOOLING AND SOCIOECONOMIC ATTAINMENTS:
HIGH SCHOOL AND COLLEGE INFLUENCES

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The Johns Hopkins University

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Schooling and Socioeconomic Attainments:

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Policy Studies in School Desegregation program applies the basic theories of social organization of schools to study the internal conditions of desegregated schools, the feasibility of alternative desegregation policies, and the interrelation of school desegregation with other equity issues such as housing and job desegregation. The School Organization program is concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed the Teams-Games-Tournament (TGT) instructional process for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Process and Career Development program is studying transitions from high school to post secondary institutions and the role of schooling in the development of career plans and the actualization of labor market outcomes.

This report, prepared by the School Process and Career Development program, examines how differences between schools (institutional effects) and differences within schools (individual experiences) affect students' later occupational status and earnings.

ABSTRACT

The socioeconomic consequences of qualitative variations in educational experiences are evaluated for a sample of young adult males who were first surveyed in 1955 as high school sophomores and followed up in 1970. Models of institutional influence and of within-school processes are developed for both secondary and post-secondary education to integrate and refine the literatures on school effects and returns to schooling. Rather impressive occupational status and earnings differentials are associated with gross school-to-school differences and with qualitative differences in educational experiences within institutions. Secondary school characteristics and experiences weigh particularly upon the market outcomes of youth who terminated formal schooling at high school graduation. We suggest that the traditional use of quantitative indices of schooling (i.e., years of school completed or certification levels) in assessing the market consequences of investments in education need to be supplemented by information on qualitative variations in educational experiences. Additionally, the likelihood that school experiences may have quite different implications for selected target populations deserves further consideration. The simplistic assumption implicit in much of the school effects literature that institutional effects are homogeneous may actually mask quite important consequences for certain students.

SCHOOLING AND SOCIOECONOMIC ATTAINMENTS:
HIGH SCHOOL AND COLLEGE INFLUENCES

INTRODUCTION

The diverse literatures on education and social stratification reveal a distressing disjuncture between the expectations from theory and the evidence from research. Virtually every commentary on the functions of schooling in industrial (sometimes limited to advanced capitalist) society posits (or, more often, assumes) a preeminent responsibility of schools in preparing students for and allocating them to their adult work roles. While there often is sharp disagreement on precisely how it is that schools promote such career preparation, on what dimensions of competency training are thought most significant, and on the valuation of this state of affairs, authors of such different persuasions as the functionalists Parsons (1959) and Moore (1969) and the radical economists Bowles and Gintis (1973, 1976; Bowles, 1977; Gintis, 1971) nevertheless find themselves on common ground in perceiving intimate linkages between society's systems of educational and social stratification. Schools are thought not only to channel and certify their clients, but also to change them, either cognitively or non-cognitively (see especially, Dreeban, 1967), in ways dictated by the requirements of the prevailing economic order.

The specific worker qualities that are thought instilled through schooling are themselves wide-ranging, running the gamut from cognitive facility to deferential docility (compare, for example, Mincer, 1974, with Edwards, 1976). Regardless of which of these are the theorists'

preferred constructs, there appears to be quite general agreement that schooling and school organization are effective mechanisms for promoting them, and, hence, for preparing students for their eventual work careers. The organization of schooling thus not merely reflects the prevailing economic and social orders, but, more significantly, it is an active agent in their reproduction (Bowles, 1977).

These are impressive and recurrent claims for the efficacy of schools as social constructions, yet the assertions of these largely theoretic expositions find little support in empirical assessments of the actual impact of school organization upon its clients (Jencks, et al. 1972). How, then, might the bold and persistent claims from theory and/or informed judgment be reconciled with the failure of educational research to document the seemingly self-evident? While we are open to the possibility that this more theoretical literature may well exaggerate the extent to which schools and educational experiences do in fact transform students in the course of processing them through, we nevertheless think it premature to draw such a conclusion from the generally non-supportive research evidence currently available. Four limitations of this and related literatures strike us as especially troublesome.

First, research on the contribution of schooling to the maintenance or alleviation of inequality, although voluminous and quite illuminating, nevertheless suffers from a certain narrowness of focus. The most common concern in both the sociological and economics literatures is to estimate the socio-economic benefits accruing to marginal increments in educational attainment (Sewell and Hauser, 1975; Griffin, 1976; Mincer, 1974; Bowles 1972). Such

assessments, relying as they do on simple quantitative indices of years of schooling completed, or certification levels, ignore the labor market consequences of qualitative variations in education deriving both from differences between schools and from diverse experiences within them. An adequate investigation of the role of formal education in reproducing socio-economic inequality from generation to generation must necessarily attend to these qualitative dimensions of educational inequality and how they, in turn, affect the positioning of individuals in the stratification system (c.f. Bowles and Gintis, 1973, 1976).

Second, it is now generally appreciated that between school differences are at best modestly consequential for cognitive growth, educational performance and educational attainment (e.g., Coleman, et al, 1966; Mosteller and Moynihan, 1972; Jencks, et al, 1972; Hauser, 1971; Hauser, Sewell, and Alwin, 1976; Klitgaard and Hall, 1975). While these, unquestionably, are important products of schooling, they can hardly be thought to exhaust the competencies and qualities that might be assets in the workplace (c.f., Berg, 1970). The personal qualities that actually make for a successful worker are not well understood, but suggestions abound in the literature and the responsiveness of such traits, aside from the few mentioned above, to variations in school quality and to school experiences is virtually unknown. Inkeles' (1966) catalogue of the dimensions of competency might be a useful starting point for such an exercise, but even his seemingly comprehensive scheme falls considerably short of exhausting the reasonable possibilities. Various radical critiques of schooling emphasize its role in producing workers intellectually and dispositionally suited to the requirements of the hierarchical social organization of work characteristic of monopoly capitalist

production (Bowles and Gintis, 1976). Qualities such as docility, reliability, punctuality, and deference to authority are assumed by Marxist scholars to be the important products of school socialization (Edwards, 1976; Bowles and Gintis, 1976). That such facets of disposition and deportment have been almost completely neglected in school effects research underscores its narrow scope.

There actually have been surprisingly few studies of school effects, either secondary or postsecondary, on adult socioeconomic achievement; therefore, we cannot securely conclude that school differences have little relevance for career attainments. In fact, the little literature that is available, though hardly conclusive, suggests otherwise. Jencks and Brown (1975), for example, found secondary school differences to account for an additional 9.5 percent (or 3.6% after corrections for degrees of freedom) of the variance in the occupational status of young men over that attributable to race, status origins, academic achievement, and educational attainment. Although comparable analyses have yet to be reported for earnings, the importance of per pupil educational expenditures for economic attainments has been the subject of some study (Wachtel, 1975, 1976; Johnson and Stafford, 1973; Link and Ratledge, 1975; Morgenstern, 1973). While the results of this research often are contradictory (compare, for example, the positive conclusions of Wachtel, 1975 and Link and Ratledge, 1975 with the negative assessment by Morgenstern, 1973), Wachtel (1975), in what is perhaps the most adequate study of this sort, concluded that secondary school "quality" remained a significant determinant of earnings even net of a variety of individual-level controls. Thus, there is at least the suggestion that the influence of secondary schools on actual socioeconomic achievements may be appreciable,

despite the generally negative conclusions forthcoming from school effects research on cognitive outcomes. Discussion of possible postsecondary consequences for socioeconomic attainment, also central to the present project, will be deferred until a bit later.

Third, the traditional search for school effects, in focusing on differences between educational institutions, neglects potentially quite important qualitative variations in the educational experiences of students within a given school setting. Thus, the differential access to and utilization of resources within schools may be of far greater consequence for student socialization and instructional outcomes than any disparities across schools in their personnel, facilities, educational philosophies, curriculum organization and the like. Research on the relevance of the quality and character of one's peer associates, on the intensity and frequency of contact with counselors and teachers, and on one's secondary school track placement for a broad range of cognitive and non-cognitive products of the educational process clearly suggest this possibility (Kerckhoff, 1976; Hauser, Sewell, and Alwin, 1976; Heyns, 1974; Alexander, Cook, and McDill, 1978).

We assume that such school resources also may have relevance both for adult achievements and for the perpetuation of inequality across generations. Enrollment in a college preparatory track, or the completion of particular courses while in high school, may contribute to occupational and economic success by equipping students with valued skills, knowledge, or attitudes. Enrollment in vocational or business curricula may also furnish students--especially those lacking college certification--with specific job-related skills. These, in turn, may be rewarded in the workplace in the form of

increased status or earnings. While evidence on the economic returns to vocational education in secondary schools is weak and inconsistent (compare Hu, Lee, and Stromsdorfer, 1971 and Baker and Levenson, 1976), vocational education nevertheless often is assumed to have considerable market utility, especially for the occupational careers of disadvantaged youth (see "Vocational Education," Journal of Human Resources, 1968). Favorable interaction with counselors and teachers could result in more effective career counseling, as well as greater (and more accurate) information on labor market conditions and employment opportunities, either or both of which may enhance career success (c.f., Parnes and Kohen, 1975). Of course, to the extent that these variables are directly affected by status origins (see Alexander, Cook, and McDill, 1978; Heyns, 1974) they may also identify schooling mechanisms responsible for intergenerational continuities in economic position, a point of some importance in the radical critique of American schooling (e.g., Bowles and Gintis, 1976). Since the importance of such factors as sources of school influence has only recently been appreciated and since their consequences for students' eventual labor market prospects have received scant consideration,[1] we think this a particularly fertile line of inquiry for furthering our understanding of the linkages between schooling and socioeconomic well-being.

Finally, virtually all studies of school impact on labor market outcomes have assumed that the determinants of occupational and economic success are similarly efficacious across all levels of educational attainment. Should this not, in fact, be the case, and there is good reason for skepticism (e.g., Alexander and Eckland, 1975), then estimates of the importance of

school experiences for adult success may be quite misleading, essentially confounding together what might be quite important influences for some students with their trivial counterparts for others.

Drawing again upon the suggestions from labor economics, in this instance the implications of both neoclassical theories of human capital and various perspectives on labor market segmentation (e.g., Gordon, 1972), it might be assumed that students at different levels of schooling typically are being prepared for quite distinctive labor market careers with distinctive requirements for effective worker performance. If indeed the criteria for "appropriate" career preparation differ across levels of schooling, and schools are organized to promote these ends, then it seems plausible to anticipate that variations in school "quality" at any level of schooling will be most consequential for the market prospects of students who terminate their formal educations at that level. Thus, the impact of differences in secondary school organization and experiences should be at a maximum for terminal high school graduates and quite attenuated for youth who continue their educations into college (Wachtel, 1976). For these latter youth, college experiences and characteristics should exceed those of their secondary schools in their market consequences. The rationale for this expectation is advanced persuasively by Bowles and Gintis (1973: 87).

> "...the work-related personality traits required of employees differ according to the work role in question, those at the base of the hierarchy requiring a heavy emphasis on obedience and rules and those at the top, where the discretionary scope is considerable, requiring a greater ability to make decisions on the

> basis of well-internalized norms. This pattern is closely replicated in the social relations of schooling. Note the wide range of choice over curriculum, life style, and allocation of time afforded to college students, compared with the obedience and respect for authority expected in high school."

Thus, for terminal high school graduates the job related skills acquired and/or refined in high school should be more relevant for economic success since they not only exhaust the stock of so-called human capital to be acquired by them through formal schooling, but also because they should be skills better suited to the kinds of work they are most likely to pursue. Additionally, in the absence of other screening devices for these youth, such as college diploma and evidence of college performance, employers are more likely to draw upon information pertaining to the quality of their secondary schools and to their educational experiences there in making hiring and/or promotion decisions.

We therefore anticipate that the labor market consequences of variations in educational experiences and school quality will differ substantially across student groups depending on the level at which their formal schooling is concluded. If such differences do maintain and are pronounced, then the traditional procedures for assessing the impact of schooling may well underestimate that impact by mistakenly assuming it to be uniform for all students. The analysis that follows considers this possibility through parallel analysis of both the between-school and within-school determinants of labor market success for terminal high school graduates and college-goers.

We examine college-goers separately, however, for yet another reason. Given the presumed need for highly-skilled, technologically sophisticated manpower in advanced capitalist societies, post-secondary education is of increasing importance for the maintenance and growth of a knowledge-based economy (Clark, 1962; Bell, 1973). Indeed, societal pressure for a professionalized labor force is dramatically reflected in college-enrollment statistics; in the early 1970's, for example, over 50 percent of American secondary school graduates enrolled in some college program after high school graduation (Freeman, 1976). We are observing, therefore, the "democratization" of higher education, this in an era of nearly universal access to secondary education (c.f., Jencks, et al, 1972). As institutions of higher learning have adapted to the changing economic requirements of late capitalism, they have not only grown in size and in number but also have developed new programs and restructured existing ones (Freeman, 1976). The distinctions both among and within post-secondary educational institutions are presumed to have a substantial impact on the growth of the "knowledge elite" (Galbraith, 1976; Bell, 1973) and on the subsequent socioeconomic careers of those who generate, disseminate, and manage technical expertise (Freeman, 1976; Reed and Miller, 1970). Empirical explorations linking schooling and social inequality, thus, should attend not only to secondary school "effects," but also to the manner in which diverse college experiences are implicated in the intergenerational transmission of socioeconomic success or failure.

A modest body of literature is, in fact, devoted to the role of post-secondary education in affecting career attainments (e.g., Alwin, Hauser, and Sewell, 1975; Solmon, 1975; Reed and Miller, 1970; Wachtel, 1975, 1976).

However, how it is that attendance at one or another post-secondary institution, or one's educational experiences within such institutions, condition career attainments remains poorly understood. On the one hand, it is known that students are not randomly allocated to colleges (Alwin, 1974). Secondary school differences, status backgrounds, and academic ability influence the probability of college enrollment, and, moreover, affect selection into certain types of colleges (Alexander and Eckland, 1977). Thus, a college education may simply certify the marketability or trainability of prospective workers without actually changing them to a marked degree (on the "screening" hypothesis, see Berg, 1970 and Layard and Psacharopoulos, 1974). On the other hand, colleges actually may equip their students with skills and/or attitudes which prove valuable in work organizations (e.g., Solmon, 1975; Freeman, 1976). The latter belief, certainly, provided the rationale for massive inflows of public monies into higher education during the late 1950's and 1960's.

Early, and to some extent more recent, research on the socioeconomic careers of college men often did not (or could not) take into account many of these selection or "input" variables, thus possibly resulting in questionable inferences concerning the efficacy of college "quality" and/or experiences within post-secondary institutions (e.g., Freeman; 1976; Spaeth, 1970; Weisbrod and Karpoff, 1968; Solmon, 1975; Wales, 1973). The results of more adequately specified achievement models now available (e.g., Alwin, 1974, 1976b; Alwin, Hauser and Sewell, 1975; Wachtel, 1975) indicate that institutional differences and/or academic performance and course of study in college influence some labor market attainments (earnings, probability of promotion) but not others (occupational status; e.g., Alwin, 1974).

THE PRESENT ANALYSIS

The present project addresses many of the limitations described above and integrates these various perspectives on schooling and inequality by assessing the occupational status and earnings differentials associated, first, with attending different secondary and post-secondary educational institutions and, second, with academic experiences and allocative mechanisms situated within schools and colleges. For the reasons noted above, we examine these issues separately for terminal high school graduates and college-goers. We hope to determine whether, how, and for whom between-school differences and within-school resources and educational experiences constrain subsequent labor market achievement and thereby reproduce or modify socioeconomic inequality.

The Model

The model to be evaluated in this paper is presented schematically in Figure 1. In addition to including variables examined in other research on general socioeconomic achievement processes (e.g., Sewell and Hauser, 1975; Alexander, Eckland, and Griffin, 1975), it also has certain distinctive features. Because so few data sets contain information on parental income (the exceptions are Sewell and Hauser, 1975; Griffin, 1976) and religious background (Featherman, 1971), for example, our understanding of their relevance for the quality of education received and, subsequently, for adult achievement is quite limited (for conjecture on such effects, see Bowles, 1972). Our present work also complements and expands existing research on the labor market achievements of college-goers. Our college models include one important post-secondary institutional characteristic, college "selectivity" (Astin, 1965),

and several indicators of experiences and attainments within colleges (e.g., performance, receipt of honors; major; academic self-image). Few studies have considered the importance of bot' college attributes and experiences for socioeconomic attainment. Following Alwin (1974; 1976b; Alwin, Hauser, and Sewell, 1975), we also specify the impact of socioeconomic background, ability, and a variety of high school socialization and allocation mechanisms, thereby controlling for the influence of these variables on college selection and performance and assessing the degree to which their effects are mediated by subsequent college experiences. Finally, in the college analyses we also hold constant secondary school differences (on the necessity of this control, see Alexander and Eckland, 1977; Wachtel, 1975, 1976), thereby taking into account patterns of institutional stratification across levels of schooling in assessing college effects. This model is one of the few which simultaneously includes indicators of high school and college quality and experiences.

The causal ordering of variables in this model was dictated, where possible, by the time frame in which they were measured or, if retrospective, to which they refer. Thus, for example, variables measured when the respondents were high school sophomores (e.g., significant others' influence, goal orientations) are considered antecedent to senior year outcomes (curricula,

FIGURE 1 HERE

coursework, self-image, etc.), and all high school variables precede college experiences. Decisions regarding the ordering of variables measured at the same point in time were guided by the implications of specific item wording and judgments based on their theoretical relationships (e.g., Sewell, Haller, and Portes, 1969). Our specification leaves unanalyzed the exact causal

relationships between background statuses and school membership. As Hauser, Sewell and Alwin note (1976: 316), however, net effects are the major concern of most school effects research, and the estimation of these are unaffected by the causality between background and school membership.

PROCEDURES

An accurate assessment of the impact of school differences requires proper controls for individual-level attributes which may affect economic success (Hauser, 1971; Alwin, 1976a). Unless school-level determinants of socioeconomic achievement are unrelated to important individual traits that may have been omitted from the inquiry, inferences concerning the efficacy of school "quality" are quite likely to be erroneous. Jencks and Brown (1975: 306) acknowledge this problem in noting that their estimate of school effects on occupational status attainment may reflect unmeasured student differences, and the various studies by economists are subject to the same criticism. The analytic procedures employed by most economists also are deficient in yet another respect. Economists typically relate only <u>one</u> school resource (and often it is actually measured at the district or state level), e.g., per pupil expenditures, to individual earnings. As a consequence, the estimated returns to <u>educational expenditures</u> are probably biased upward due to the omission of other school-level attributes correlated with both expenditures and earnings. On the other hand, if this effect is interpreted as reflecting the consequences of attending different high schools, or of "school quality," as is typical, it likely is biased downward, since the <u>one</u> school-level characteristic studied likely will not capture <u>all</u> relevant school-to-school differences. Upper-bound

or gross estimates of the socioeconomic consequences of attending different high schools may be obtained by the method of analysis of covariance (see Hauser, 1971; Alwin, 1976a), which is the analytic strategy employed in this paper.[2] Since this procedure partitions the variation in variables into their within- and between-school components, we can also assess the impact on socioeconomic inequality of educational resources located within schools without fear that such influences are contaminated by school-to-school differences (see footnote 1).

Sample

The data for this analysis are based on a national sample of youth, first studied in 1955 as high school sophomores and followed up in 1970. The original 1955 survey of almost 35,000 students, conducted by the Educational Testing Service, included all sophomores in 97 schools. The survey consisted of two instruments: a twenty item test of academic aptitude which measured both verbal and mathematical ability, and a questionnaire.

The sample for the 1970 follow-up consisted of 4151 sophomores from 42 schools. Usable follow-up data were obtained for 2077 of these students, 1130 females and 947 males. Our analysis is limited to the male subsample. There were 525 men in our sample who reported having pursued an academic course of study in either a two year community college or a four year college or university. We identify these youth as "college goers." There were 338 men who terminated their academic schooling at (or, for a very small number of students, before) high school graduation. These youth constitute the subsample of "high school graduates," and include respondents whose post-secondary schooling was restricted to either technical/vocational training or non-academic coursework. Men with unknown educational attainments were excluded from this analysis.

Variables

1. Five background status variables are employed in this analysis; except for some missing data estimates, all were obtained from the 1970 schedule: (1) mother's education and (2) father's education, scaled to years of schooling completed; (3) father's occupation while the respondent was in high school, coded in the Duncan SEI scale; (4) a 13-item factor-weighted "acquisition" index of possessions in the respondent's household; and (5) parental income while the respondent was in high school, originally coded in 24 income categories and rescaled into dollars by assigning the mid-points of the income categories.

2. Religious background was measured by an item in the 1970 instrument. After extensive experimentation, we decided to use two dummy variables, representing a "Catholic" background and a "Jewish" background. Because so few respondents from Jewish backgrounds did not enter college, this variable is not employed in the analysis of high school graduates.

3. Academic aptitude was measured with the 20-item test mentioned above and was administered by ETS during the 1955 survey.

4. An index of perceived peer college orientations was constructed by summing responses to two items from the 1955 questionnaire, one tapping the college plans of the friend the respondent most liked and the other reporting the proportion of peer associates attending or planning to attend college.

5. Two indicators of the influence of adult significant others were obtained from the 1955 schedule. One item pertained to school personnel and asked, "To what extent have you discussed going to college with the teachers or guidance counselors (advisors) in your school?" Another item, comparably worded, pertained to parents. The response categories for both items were "not at all," "some," and "quite a lot."

6. Educational expectations were ascertained from the 1955 schedule and responses were trichotomized into "college-goers," "possible college-goers," and "non-college-goers."

7. Different indicators of occupational aspiration are employed for the college-goers and for the high school graduates, though both are based on the same item from the 1955 survey. For college-goers, occupational aspiration is assigned SEI scores. For high school graduates, however, we employ a dummy variable representing aspiration for a professional or managerial occupation. Preliminary work revealed that for high school graduates the simple distinction between high status aspirations and lesser goals captures the relevant motivational content of such expressed ambitions.

8. Academic self-image is a factor weighted scale constructed from nine self-evaluation items in the 1970 schedule dealing with high school performance and problems, such as "I usually did a bit more than the teacher required" and "I wasn't able to concentrate on what I read."

9. Senior year curriculum enrollment, obtained from the 1970 schedule, is measured by two dummy variables, "college curriculum" and "vocational-commercial curriculum."

10. Mathematics and science coursework was ascertained by summing responses to two items contained in the 1970 questionnaire, which asked how many semesters of mathematics and science were taken while in high school.

11. Senior class standing is based on a quintile ranking obtained from principals in 1969.

12. Educational attainment was originally reported as certification level (highest degree obtained) and subsequently recoded into years of schooling completed. There is no variance in the educational attainment for high school graduates; hence, it is not employed in the analyses for those men.

13. Academic self-concept in college is a three item factor weighted scale. The items pertained to perceived difficulty in "learning how to study" and in "keeping up with my grades" and to "lack of adequate preparation (in high school)."

14. Grade point average in college was obtained from the 1970 schedule. A ten category precoded scale was provided with categories ranging from "A or A+" to "D or less" in half grade intervals. A substantial number of college dropouts failed to provide cumulative GPA's, probably thinking that this item did not pertain to them, but did provide "terminal year" GPA's which also were requested. When non-respondents reported only three semesters or less of college enrollment, the average of freshman year and terminal year GPA's was used as an approximation for cumulative GPA.

15. An index of the respondent's academic honors in college was calculated by summing responses to a question in the 1970 instrument asking, "Did you ever receive any of the following academic awards or honors as an undergraduate? (Circle as many as apply)." Nine types of honors or awards were listed, ranging from "Dean's List" and "Phi Beta Kappa" to "graduation with honors (cum, magna, summa)."

16. College major was taken from the 1970 questionnaire. Individuals who did not report their major as a "senior," or during their "last year," were assigned their intended freshman year major. After extensive experimentation with a variety of coding schemes, we decided to employ the following dummy variables: engineering major and business major. Roughly 40 percent of our college-goers reported their major as one of these categories.

17. College selectivity scores, indexing the quality of the colleges

attended by these respondents, were assigned to the last undergraduate institution attended by the respondent using Astin's Estimated Selectivity Level Index.[3] In the event that information on terminal year institution was unavailable, we used the selectivity of the respondent's first undergraduate institution. Selectivity is defined as "the total number of highly able students who want to enroll at the college divided by the number of freshmen admitted. Thus, the greater the number of these bright students who apply, relative to the number admitted, the more 'selective' the institution can be" (Astin, 1965: 55). A sizeable number of respondents attended either junior colleges or four year institutions which were not included in Astin's ranking; consequently, selectivity scores could not be directly assigned in these cases. Average aptitude scores within college selectivity categories within our sample were used to determine the placement of these non-coded types on the Astin scale. See Alexander and Eckland (1977) for more detail on this estimation procedure.

18. Occupational attainment in 1970 was indexed by the Duncan SEI scale.

19. Annual earnings (as of 1969) were ascertained from the 1970 questionnaire in a manner identical to that discussed above for parental income.

We occasionally employ other variables for control purposes, or to elaborate on a particular discussion. These include regional location and the degree of urbanization of the respondent's 1955 and 1970 residences, status and aptitude compositions of high schools, and several post-schooling training activities and work experiences, including annual hours worked. In order to keep a rather complex design and an elaborate model from becoming even more unwieldy, these results are discussed where necessary, but not presented.

Results

School-to-School Differences

Table 1 presents means, standard deviations, and proportions of variance lying between high schools for the variables employed in this analysis.

TABLE 1 HERE

Generally, the amount of between-school variance in these measures is quite comparable to other estimates (e.g., Heyns, 1974; Hauser, 1971; Hauser, Sewell, and Alwin, 1976; Alexander and McDill, 1976).

In Table 2, we present estimates of the contributions of schools (included in the regression equations as a set of 41 dummy variables) to occupational status and earnings for high school graduates, before and after controlling for the remaining variables in Figure 1 (see above). In these analyses, as in all that follow, bivariate data-present subsamples are employed. The results for listwise deleted samples were quite comparable throughout unless otherwise noted.

TABLE 2 HERE

Roughly 15 percent of the variance in occupational status is situated between schools (row 1).[4] Controlling status and religious origins and academic aptitude reduces this effect by one-fifth, to 11.9 percent (row 2), which hardly is affected by the additional controls introduced in later equations (see rows 3 through 5). Net of a variety of individual level variables, then, including social background, ability, and academic experiences and performances, secondary school differences uniquely account for an additional 11 percent of the variance in occupational status attainment for high school graduates. School-to-school differences thus appear quite influential in situating high school graduates in the occupational status hierarchy.

Even more impressive statistics are observed for annual earnings differentials. Nineteen percent of the variance in this dimension of labor market success lies between schools (row 1). Controlling for the remaining variables has little effect on this estimate of "school effect." Fully 15.5 percent (or 4.7 percent after correcting for degrees of freedom) of the variance in the earnings of terminal high school graduates is accounted for by secondary school differences even after controlling for all other variables in our model, including occupational achievement. This represents 82 percent of the entire variance situated between schools. In fact, secondary school differences uniquely account for almost two-thirds of the variance in economic achievement which is explained by all of the variables (both within and between school) included in our "high school" model (R^2 = .248).

The data presented in Table 2 suggest that even after a period of fifteen years, high schools have a pronounced impact on the occupational and, especially, economic successes of those students who do not go on to college. These school effects, moreover, rival in importance achievement-related personal characteristics. It is possible, of course, that our estimates are inflated owing to the neglect of relevant individual level attributes or community or regional characteristics which are correlated with both secondary school quality and career attainments, but our controls on background characteristics and school experiences are quite extensive. Moreover, additional controls (not reported in tables) for a number of post-school labor market activities, including self-reported sources of job training, annual hours worked and work experience, and for regional differences (i.e., place of residence as measured by dummy variables distinguishing the Northeast, North Central and Western regions and large towns and metropolitan areas for both 1955 and 1970) reduce the unique contribution of high school differences to occupational status attainments by only about 2 percent and barely affect the estimates for earnings. Thus,

the influence of secondary schools or socioeconomic achievements are not appreciably affected by (1) extra-schooling "investments in human capital," (2) the respondent's place of residence in 1970, or (3) either the size of the community or region of the country in which the respondent's secondary school was located.[5]

In Table 3, we present the gross and net contributions of schools to the variance in these labor market outcomes for college-goers. Consider first occupational status. Less variance in this dimension of career achievement is situated between schools for college-goers than for high school graduates (about nine and fifteen percent, respectively).[6] Additionally, the net between school variance, as suggested by our "high school" model, is markedly

TABLE 3 HERE

lower for those students who obtain at least some college. For example, controls for background characteristics and school process variables reduce the effect of schools to 4.7% (row 5). This compares to 11 percent for high school graduates (row 5, Table 2). Controls for the educational attainments of these workers (row 6) reduce this figure still further, to 3.3 percent (or 0% after adjustments for loss of degrees of freedom). Thus, educational attainment, which itself is moderately affected by school differences (see footnote 6), is one of the mechanisms by which schools affect occupational status. Further controls for post-secondary educational experiences, including college selectivity, do not reduce this "net" estimate appreciably (row 9). High schools, then, do not appear to be markedly influential in the occupational status achievements of college-goers, regardless of whether or not post-secondary educational experiences are controlled

Annual earnings, on the other hand, are much more sensitive to school differences, even for these relatively highly edu[illegible]workers. About 17.4 percent (10.4% adjusted for degrees of freedom) of the variance in earnings of college-goers is situated between high schools (row 1, Table 3), but this

is reduced to slightly over 10 percent after controlling only status and religious backgrounds and academic aptitude. Additional controls for the school process variables (rows 3-5), years of schooling completed (row 6), and occupational status (row 7), further reduce the net between school variance only slightly, to 9.3 percent (or 2.8% after adjustments for loss of degrees of freedom). Secondary school differences, then, do appear to be modestly important in creating inequalities in the economic attainments of workers with at least some college education, even after controlling for various college characteristics, experiences and attainments (row 10). Finally, controlling for the respondent's 1955 and 1970 place of residence and post-schooling job experiences discussed above scarcely affects (by less than .5%) this estimate of the net effect of secondary schools, a finding already observed for high school graduates.

We hypothesized above that socioeconomic consequences of secondary school differences should be more pronounced for workers who terminate their formal schooling with high school graduation. The data presented in Tables 2 and 3 support this proposition. Moreover, since college experiences are largely independent of high school differences, these differential secondary school effects do not reflect merely secondary school differences in the likelihood of their graduates' attending more or less selective colleges or of their having qualitatively different experiences and attainments in college.

Within-School Effects

Just as with the between-school analysis, the within-school results, though somewhat mixed, generally are consistent with our expectations. Tables 4, 5 and 6 present the within-school regression slopes for the two student groups.[7] Only aspirations for a high status white-collar job and scientific and mathematics coursework positively affect the positioning of high school graduates

in the occupational status hierarchy (panel A).[8]

TABLE 4 HERE

The positive consequences of career ambition are not particularly surprising (e.g., Sewell and Hauser, 1975). That coursework enhances occupational achievement may, however, shed some light on how schooling actually affects adult labor market success. Employers are unlikely to know about such coursework--except perhaps indirectly through educational certification, which is constant for these men, or secondary school differences, which are statistically controlled--and, therefore, are unlikely to reward job incumbents simply for having taken such courses. It does appear, then, that at least these school experiences enhance job-related skills or attitudes, a finding more consistent with the "productivity" (e.g., Mincer, 1974) or "attitudinal" (e.g., Bowles and Gintis, 1976; Gintis, 1971) hypotheses than with the "screening" interpretation of school and schooling effects on market success (e.g., Berg, 1970). We also note that neither occupational aspirations nor coursework affects the occupational success of college-going men (see Table 5), thus supporting, in part, our thesis that high school based factors are more important for high school graduates.

TABLE 5 HERE

Turning next to the earnings of high school graduates (Table 4, Panel B), the only significant determinants of economic attainments are teacher contact, high school academic track,[9] and occupational status (class rank, registering a standarized effect of .099, falls just short of conventional levels of statistical significance). While the item tapping teacher and counselor influence asked

specifically about "going to college,' it might possibly index more general teacher and counselor encouragements and influences as well. Interestingly, it is not teacher influences which affect the subsequent earnings achievements of college-goers but parental supports (see Table 6). For high school graduates, on the other hand, parental influences are trivial (Table 4). Again, we must note that while the question measuring parental encouragement reffered to educational outcomes, its importance here may reflect other kinds of influences or motivations which we have not measured directly.

We think it important that for college goers, parents are important sources of interpersonal influence, while for high school graduates it is school personnel who predominate. This, of course, is consistent with our assumption that secondary school influences are more consequential in the socioeconomic careers of high school graduates than in the careers of college-goers. We note also the large differences, in the expected direction, in the economic benefits of high school academic performance (STAND) for the two groups. Other notable differences between the two groups are the smaller economic benefits accruing to occupational rank and the larger status origin (especially parental income) and religious background influences on annual earnings among college-goers. Only for college-goers, then, does there appear to be any appreciable "inheritance" of earnings and other status advantages and liabilities.

Such intergenerational transmission of parental income or wealth was observed earlier in these (Alexander, Eckland, and Griffin, 1975; Griffin, 1976) and the Wisconsin data (Sewell and Hauser, 1975; Alwin, 1976b), and has been the subject of much conjecture (Bowles, 1972), but the finding has

yet to be "explained" (in a statistical sense). The data presented in Table 6 offer at least a partial explanation. Controls for post-secondary educational experiences reduce the parental income coefficient by about a fourth, from .098 to .077 (compare column 9 with columns 5 and 7). Youth from high income families tend to enroll in more select colleges and have a somewhat greater probability of pursuing a business-related major (perhaps a proxy for income aspirations--see Freeman, 1976) while in college (not shown). College selectivity and college major are thus the only appreciable mediators of parental income effects identified in our model. Alwin (1976b; Alwin, Hauser and Sewell, 1975) also found college differences to account for a small amount (6%) of the impact of parental income in the Wisconsin data. Our analysis reproduces this result, and suggests as well that the acquisition of job-related skills in college, through one's college major, may also serve to maintain socioeconomic inequalities across generations, albeit only to a modest degree (while the structural estimate of parental income is not significantly different from zero, this, of course, is partly a function of our relatively small sample size).

We consider, finally, the impact of level of education and college experiences on socioeconomic achievement among college-goers. Each year of education yeilds a status payoff of about 2.9 points (Table 5, column 7) and is worth $111 annually (Table 6, column 6), of which about $91 (or 82%) is the direct effect of educational attainment within levels of occupational status (column 7).[10] This statistic increases to over $200 annually after we control for a variety of labor market experiences and training activities (not shown), most of which are negatively correlated with educational attainment

(the longer one stays in school the less opportunity he has to acquire market experience, Griffin, 1978). College selectivity registers only minor influences on occupational status (Table 5, column 6) and earnings (Table 6, column 7), even in the absence of controls for secondary school differences (not shown). Data limitations preclude our evaluating the effects of any other college characteristics, and, because of this, we probably are underestimating the importance of all college differences (e.g., Alwin, 1976b; Solmon and Wachtel, 1975).

Although college selectivity has little impact on the labor market outcomes of these men, some college experiences and outcomes do facilitate occupational and economic attainments. Academic performance in college, for example, significantly affects occupational status (Table 5, column 7), while majoring in business or engineering yields substantial earnings returns, net of occupational position. Independent of a multiplicity of other factors, including secondary school differences and college "quality" (as measured by selectivity), certain postsecondary schooling mechanisms thus affect both the placement of men in high status jobs (academic performance) and, subsequently, economic attainments (college major).

SUMMARY AND CONCLUSIONS

Advanced capitalist societies, characterized as they are by a meritocratic state ideology, a knowledge intensive market economy, the ethos of productivity and efficiency, and structured social inequality, place extensive and possibly contradictory demands upon its formal educational institutions. Schools are chartered not only to socialize youth into general adult roles but also to

identify and subsequently train adolescents for what are thought to be their appropriate work careers. Additionally, schools are one--and possibly the most important--arena in which economically handicapped youth are thought to acquire the cognitive and noncognitive skills necessary for them to escape their disadvantaged status origins (Coleman, et al., 1966). The social organization of schooling, thus, ideally is structured so as to facilitate individual achievement while, simultaneously, ensuring that late capitalism's social, political, and economic requirements are suitably met. The institutional missions of formal education thus are wide-ranging, and perhaps mutually antognistic.

Thus, to the extent that any one objective of schooling assumes paramount importance, other institutional goals may be slighted or actively subverted. Marxists believe that schools are not neutral agencies in the clashes among different status and economic groups, but are, in fact, vehicles to be used by the dominant classes to reproduce the prevailing capitalist order (Bowles, 1972; 1977; Bowles and Gintis, 1973, 1976). Late capitalism, it is argued, requires a well-disciplined, motivated, and "productive" labor force and the social relations of education are assumed to produce precisely these qualities in students. Hence, schools do not "liberate" their clients from their pasts (i.e., the goal of social mobility) but rather prepare them to assume their "proper" place in society's stratification system. Surely, though, not all strategies of school organization are equally efficacious for discharging these prescribed missions, yet, as we noted in the Introduction, almost two decades of cross-disciplinary research has failed to produce compelling evidence that schools actually perform the ends attributed to them by either Marxists or functionalists.

We argued in this paper, however, that limitations of the accumulated literature on schooling and social stratification are such that it would be premature to draw firm conclusions on these matters. Four major problem areas were identified in this research: (1) over-reliance on purely quantitative indices of exposure to schooling (i.e., years of schooling completed); (2) the student outcomes typically evaluated (e.g., test performance); (3) the near exclusive concern with school-to-school differences and the attendant paucity of research on the impact of within-school resources; and (4) the use of undifferentiated student populations, a practice which may obscure the importance of schooling for adult socioeconomic success and in transmitting inequality from generation to generation.

We attempted to redress some of these deficiencies in assessing school effects on socioeconomic inequality. We conclude that qualitative variations in the educational process, deriving both from differences between schools and from allocative mechanisms and educational experiences within them, do, in fact, have important socioeconomic consequences for men early in their labor-force careers and that such school effects may be more or less pronounced for selected groups of students. The finding that the socioeconomic success of terminal high school graduates is considerably more responsive to characteristics of their secondary schools and to experiences therein than is that of college-goers may have especially important implications both for our appreciation of how school organization affects stratification outcomes and, more generally, for the conduct of future school effects research. Our successfully having drawn upon the implications of widely accepted theories from labor economics to identify outcomes and youth particularly responsive to variations in school

organization and experiences suggests that the search for "unusually effective schools" (Klitgaard and Hall, 1975) might profitably be complemented by theoretically informed searches for especially sensitive student populations. The customary conduct of school effects research, in implicitly assuming uniformity of impact, may actually mask quite substantial consequences of variations in school organization and quality for selected students. Thus, even the generally negative conclusions reviewed earlier regarding school impact on subjective outcomes, academic performance and educational attainment may merit reconsideration.

We see at least four further implications of this study. First, arguments which purport to explain that portion of the inequality in earnings not accounted for by traditional "status attainment" variables (e.g., social origins, ability, educational attainment, occupational status) by the use of such nebulous and unsatisfactory concepts as "luck" (e.g., Jencks et. al., 1972) are, at least in part, incorrect. For both groups of men studied here, high school differences are quite important in explaining their differential economic achievements.[11] This is not to imply that random disturbances are of no consequence; indeed, they are, especially for men early in their socio-economic careers (e.g., Mincer, 1974). Nor are we suggesting that career attainments, especially earnings, are predominantly determined by educational experiences and certification, for clearly most of the variance in earnings is orthogonal to the secondary and post-secondary schooling processes measured here. Hence, our results suggest that both Marxists and functionalists may overstate the linkage between educational and social stratification. We are arguing, however, that researchers should assess the impact on career attainments of a variety of qualitative variations in the educational experience (not to

mention labor market conditions and experiences) before resorting to the use of such catchalls as "luck" or "personality."

Second, Duncan's (1969: 104) argument in behalf of simple quantitative measures of educational attainment ("Inferior [school] quality at any one level of the school system is likely to result in impaired chances of proceeding to the next level....Hence, school years completed has partly built into it a correlation with quality"), while plausible and undoubtedly correct, cannot justify the exclusion of direct measures of school "quality" in earnings functions. Although the quantity and quality of schooling are correlated, they are conceptually and empirically distinct. The consequences of this observation are two-fold. On the one hand, to exclude school-to-school differences from achievement models results in underestimating the influence of "schooling" in its most general sense. For example, we found for college-goers that, net of years of schooling completed, high school differences registered an important impact on earnings. On the other hand, to assume that educational attainment is itself a proxy for school quality, and thus to exclude school differences from earnings functions for this reason, may lead to severe biases in our estimates of the efficacy of individual-level resources. Our data suggest, for example, that this is of crucial importance for correctly estimating the effects of social or religous backgrounds on adult attainment, since these variables are more strongly correlated with secondary school differences than are within-school resources.[12]

Third, insofar as schools and schooling mechanisms are implicated in the reproduction of socioeconomic inequality from generation to generation (e.g., Bowles, 1972, 1977; Bowles and Gintis, 1976; Gintis, 1971), attention should be

devoted to post-secondary educational institutions and to the differential access to and utilization of resources located within them. Our results suggest that these mechanisms both enhance career achievements and transmit some of the benefits associated with advantaged social origins. Fourth, our finding that educational certification (i.e., level of schooling) interacts with several other variables in our analysis suggests that socioeconomic achievement processes may not be uniform even for an age-homogeneous sample of white men (racial and gender differences in these processes, of course, are well documented, e.g., Treiman and Terrell, 1975). We have discussed the implications of only one such possible complication, but achievement processes also may differ by class position (Wright and Perrone, 1977), labor market sector (Gordon, 1972), occupation (Stolzenberg, 1975), and other social aggregates. Such differences must be more thoroughly understood before we can securely generalize about the processes governing socioeconomic success.

Finally, in assessing our own effort, we believe this inquiry important not only for the conclusions we have offered, but as well, and perhaps more significantly so, in its framing an agenda for exploring (1) the impact of school differences and within-school processes on the labor market careers of men (and, hopefully, women as well in future research) differing in levels of educational certification and (2) how such diverse educational experiences function to reproduce social inequalities over time. Certainly our analysis is not unflawed. The small sizes of our samples, their known biases, the relatively few schools represented in our data, the crudity of many of our measures and the unavailability of others that might have been desired, all dictate that our results be used cautiously and be considered tentative. We therefore urge other researchers to collect and/or analyze better data to either support or disprove

our conclusions. Our intention in this paper has not been to provide definitive answers, but, rather, to provide enough empirical evidence to stimulate the interest and thought of others and to avoid premature closure on relationships between social origins, "schools" and socioeconomic inequality in American society.

Footnotes

1. While several studies have estimated the importance of school-based social supports and interpersonal resources for socioeconomic achievements (Sewell and Hauser, 1975; Sewell, Haller, and Portes, 1969; Alexander, Eckland, and Griffin, 1975; Alwin, 1974), none insodoing has controlled for secondary school differences. If schools do, in fact, affect labor market behavior, school differences must be taken into account or inferences about within-school (or individual) processes may be misleading, the counterpart of the school effects "fallacy" (Alwin, 1976a). Additionally, none of these studies considers whether the labor market consequences of school experiences vary for students with different levels of educational certification. We discuss the potential importance of these interactions as our final point in the introduction.

2 The technical details of the analysis of covariance and of its application to the study of school effects are developed thoroughly in the references cited. The procedure presumes homogeneity of regression within schools, a condition which we have not formally evaluated in the data used in the present project. We feel justified in assuming such, however, in that no project which has tested for school interactions of this sort has obtained substantively interpretable differences (Alexander and McDill, 1976; Alexander, Cook and McDill, 1978; Hauser, 1971; Hauser, Sewell and Alwin, 1976; Heyns, 1974).

3. Evidence bearing on the assumption that "selectivity" indexes college "quality" may be found in Alwin (1974) and Solmon (1975). Based on data presented by Solmon (1975), we calculate that the average correlation between selectivity and eight other college attributes, all of which are presumed to

tap institutional quality, is .693. The nine attributes are: average S.A.T. verbal scores; average S.A.T. mathematics scores; average faculty salary; per-student departmental expenditures; basic income per student; basic expenditures per student; overall Gourman rating; and Gourman academic rating (Solmon, 1975: 543).

4. Unless otherwise noted, figures have not been corrected for loss of degrees of freedom due to the number of school dummy variables used in the analysis (41). Since our primary purpose is to identify potentially important sources of school influences, adjusted R^2's would be extremely conservative. These, nevertheless, are mentioned occassionally for the benefit of interested readers. The adjusted R^2 here would be 3.2 percent.

5. Unfortunately, we have practically no information available on the actual characteristics of these schools. Hence, we cannot adequately pursue what specifically it is about them that might account for their socioeconomic consequences. We can, however, report that two commonly studied contextual variables, student body status and ability compositions, account for very little of this between school attainment variance (about eight and sixteen percent for earnings and occupational status, respectively). This applies to our results for college-goers as well.

6. One reason for the lesser importance of secondary school differences for the career attainments of college men is due to the fact that high schools modestly contribute to the probability that a student will enter college. We estimate that for the total sample of EEO men, roughly 13.5 percent of the variance in college entry is situated between secondary schools. After controlling for those background, ability, and school process variables presented in Figure 1, however, secondary school differences explain only 2.2 percent (unadjusted) of the variance in college entry.

7. We considered the possibility that, for college-goers, these variables interacted with college dropout versus college graduate status. Neither the overall increment to R^2 nor any single interaction term was significant at the .05 level. This was observed whether or not we controlled for secondary school differences. For this test, we analyzed those respondents for whom we had complete data on all variables included in the analysis.

8. The only respect in which the results from listwise present and pairwise present subsamples are not comparable involves the effect of vocational curriculum on annual earnings of high school graduates. As Table 4 shows, the analysis based on pairwise present data suggests that this tracking variable exerts no direct influence on occupational status or earnings. Analysis with the listwise present subsample (N=131) indicates, however, that vocational curriculum enrollment does enhance earnings (over $1000 annually). Thus, for a very select group of terminal high school graduates, this dimension of academic differentiation appears relevant for career achievements. The ambiguity in our results, therefore, precludes our drawing any conclusions regarding the socioeconomic consequences of vocational tracking.

9. We have no satisfactory explanation for the significant negative earnings returns to college tracking for our high school graduates and we know of no other study which has examined the effect of this variable for youth who did not subsequently enter college. Taken at face value, the coefficient suggests that, for youth who do not go on to college, the skills or attitudes learned in a college curriculum are actually negatively evaluated by employers, a finding not inconsistent with the thesis proferred by Bowles and Gintis (1976) concerning the attitudinal prerequisites necessary for work in lower-status occupations.

10. We evaluated the possibility that educational attainment influences occupational status and earnings nonlinearly by employing a series of categorical variables representing levels of post-high school educational certification. We found little evidence of such nonlinear effects.

11. We must note that our estimates of "school effects" are probably biased upward due to the differential reliability of the variables included in this analysis. "Schools" are almost perfectly measured, while our other variables are undoubtedly subject to some degree of error (Bielby, Hauser, and Featherman, 1976), thus inflating estimates for "schools" vis-a-vis the remaining variables. Unfortunately, we lack the reliability and validity information on most variables necessary to correct for attenuation.

12. We estimate, for example, that for high school graduates the omission of high schools from earning functions is responsible for the following upward biases: mother's education (67%); parental income (60%); and material possessions (95%). For college-goers we observe the following biases: material possessions (45%); Catholic background (47%); Jewish background (29%); coursework (49%); and educational attainment (21%).

FIGURE 1

HIGH SCHOOL AND COLLEGE MODEL OF SOCIOECONOMIC ACHIEVEMENT [a,b]

MOMED							
FAED	PEER	EDEXP	COLLCUR	COLIMAGE[c]			
FAOCC	PAR	OCCASP	COURSE	COLGPA [c]	EDUC[c]		
PARINC	TEACH		STAND	BUSINESS [c]			EARN
ACQUIS			IMAGE	ENGINEER [c]		OCC	
CATHOL			VOCCURR	HONORS [c]			
JEWISH [c]				SELECT [c]			
ABL							
SCHOOL							

[a]See Table 1 for variable abbreviations.

[b]The variables are ordered according to assumed causal sequencing. The model is fully-recursive; we are not presenting arrows to avoid unnecessary confusion.

[c]Employed only in the analysis of college goers.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF VARIABLES AND PROPORTION OF VARIANCE BETWEEN SCHOOLS, BY EDUCATIONAL ATTAINMENT

	HIGH SCHOOL GRADUATES			COLLEGE-GOERS		
Variable	$\bar{X}$	S. D.	%	$\bar{X}$	S. D.	%
Mother's Education(MOMED)	9.96	2.87	19.1	11.59	2.81	11.5
Father's Education(FAED)	8.77	3.12	18.0	11.16	3.80	13.3
Father's Occupation(FAOCC)	30.58	18.06	28.4	45.84	22.23	20.5
Parental Income(PARINC)	6681.	3503.	26.8	9428.	6445.	13.0
Material Possess.(ACQUIS)	-.413	.805	39.1	.306	.841	21.5
Catholic(CATHOL)	.201	.402	32.5	.130	.337	11.3
Jewish(JEWISH)	-	-	-	.081	.272	37.5
Ability (ABL)	5.70	3.03	14.3	8.86	4.03	11.3
Peers' College Plans(PEER)	4.22	1.50	21.2	5.51	1.44	20.5
Parental Encour. for Coll.(PAR)	1.85	.656	14.3	2.39	.633	10.8
Contact with Teachers(TEACH)	1.44	.565	18.9	1.74	.616	14.2
Educational Plans(EDEXP)	1.47	.71	12.2	2.25	.762	12.7
Occupational Aspir.(OCCASP)	.453	.499	18.7	65.02	23.93	19.5
College Curric.(COLLCUR)	.112	.315	22.3	.607	.489	20.4
Math./Science Courses(COURSE)	5.45	3.53	19.9	8.97	3.90	20.2
Senior Rank(STAND)	1.22	1.12	12.1	2.33	1.32	5.7
Academic Self-Image(IMAGE)	.621	.771	14.6	.954	.785	10.0
Vocational Curric.(VOCCUR)	.172	.378	11.0	.055	.227	8.8
Occupational Status(OCC)	35.18	19.81	15.0	62.88	20.67	9.3
Earnings(EARN)	9971.	4550.	19.0	11977.	5255.	17.4
Education(EDUC)	-	-	-	16.21	1.97	11.7
Coll. Self-Image(COLIMAGE)	-	-	-	.249	.584	14.0
College GPA(COLGPA)	-	-	-	4.75	1.69	12.8
Business Major(BUSINESS)	-	-	-	.233	.423	7.7
Engineering Major(ENGINEER)	-	-	-	.141	.348	14.4
Honors(HONORS)	-	-	-	.970	1.462	9.7
Selectivity(SELECT)	-	-	-	49.76	9.39	17.9

TABLE 2

Gross and Net Contribution of Schools to Variance in Occupational Status and Earnings:

HIGH-SCHOOL GRADUATES with Pairwise Data Present (N=338)

Predetermined Variables	DEPENDENT VARIABLES: OCCUPATIONAL STATUS R^2	EARNINGS R^2
(1) NONE	.150	.190
(2) MOMED, FAED, FAOCC, PARINC, ACQUIS, CATHOL, ABL	.119	.172
(3) MOMED, FAED, FAOCC, PARINC, ACQUIS, CATHOL, ABL, PEER PAR, TEACH	.107	.172
(4) MOMED, FAED, FAOCC, PARINC, ACQUIS, CATHOL, ABL, PEER, PAR, TEACH EDEXP, OCCASP	.105	.169
(5) MOMED, FAED, FAOCC, PARINC, ACQUIS, CATHOL, ABL, PEER, PAR, TEACH, EDEXP, OCCASP, COLLCUR , COURSE, STAND , IMAGE, VOCCURR	.110	.174
(6) (5) + OCC.		.155

TABLE 3

Gross and Net Contribution of Schools to Variance in Occupational Status and Earnings: College-Goers with Pairwise Data Present (N=525)

Predetermined Variables	DEPENDENT VARIABLES: OCC STATUS R^2	EARNINGS R^2
(1) NONE	.093	.174
(2) SES + CATHOL+ JEWISH + ABL	.060	.103
(3) 2 + PEER, PAR, TEACH	.054	.099
(4) 3 + EDEXP., OCCASP	.051	.098
(5) 4 + Senior Year Variables	.047	.092
(6) 5 + EDUC	.033	.092
(7) 6 + OCC	–	.093
(8) 5 + College Variables	.046	.089
(9) 8 + EDUC	.031	.089
(10) 9 + OCC	-	.089

TABLE 4

WITHIN HIGH SCHOOL REGRESSION MODEL OF OCCUPATIONAL STATUS AND EARNINGS:
HIGH SCHOOL GRADUATES WITH PAIRWISE DATA PRESENT (N=338)

							Predetermined Variables										
EQ. #	MOMED	FAED	FAOCC	PARINC	ACQUIS	CATHOL	ABL	PEER	PAR	TEACH	EDEXP	OCCASP	COLLCUR	COURSE	STAND	IMAGE	VOCCUR	OCC	R^2
A. OCCUPATIONAL STATUS																			
(1)	.151	.394	.093	-.006	-1.29	3.17	.578												.034
(2)	.072	.377	.080	-.006	-1.70	4.06	.426	1.23	2.18	1.26									.060
(3)	-.021	.571	.032	-.006	-1.78	3.92	.396	.994	1.21	1.42	-.127	7.88*							.101
(4)	-.041	.539	.028	-.004	-2.00	4.51	.025	.736	.567	1.56	-.276	6.44*	-3.13	.811*	.622	.817	-3.74		.125
B. EARNINGS																			
(1)	26.	22.	-14.	.030	-82	80.	-8.												.004
(2)	20.	18.	-15.	.020	-137.	222.	-23.	52.	202.	749.									.020
(3)	15.	27.	-17.	.032	-155.	215.	-14.	74.	256.	799.*	-354.	515.							.025
(4)	27.	17.	-13.	.022	-58.	288.	-54.	26.	153.	849.*	-271.	468.	-2199.*	82.	380.	152.	-158.		.052
(5)	28.	-2.	-17.	.042	24.	201.	-63.	-15.	107.	827.*	-233.	224.	-2165.*	52.	387.	126.	-72.	32.*	.072

*Coefficient at least twice its standard error.

TABLE 5

WITHIN HIGH SCHOOL REGRESSION MODEL OF OCCUPATIONAL STATUS:
COLLEGE GOERS WITH PAIRWISE DATA PRESENT (N=525)

Predetermined Variables	EQUATION #						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MOMED	-.742	-.805	-.808	-.789	-.741	-.710	-.678
FAED	.933*	.878*	.837*	.823*	.792*	.642	.701*
FAOCC	.061	.051	.049	.060	.039	.061	.041
PARINC	-.000	-.000	-.000	-.000	-.000	-.000	-.000
ACQUIS	.327	-.193	-.283	-.526	-.345	.009	-.082
CATHOL	-2.42	-1.89	-1.83	-.501	-1.72	-.441	-1.67
JEWISH	5.09	3.76	3.83	3.91	1.17	3.75	1.44
ABL	.898*	.855*	.816*	.112	-.163	-.091	-.212
PEER		1.22	.961	.831	.469	.442	.284
PAR		1.59	1.18	.390	.547	.882	.885
TEACH		.532	.341	.183	-.003	.586	.369
EDEXP			1.45	1.01	.622	1.19	.806
OCCASP			.017	-.018	-.022	-.010	-.014
COURSE				.567	.552	.523	.512
STAND				2.917*	1.85	2.13*	1.51
VOCCUR				-.835	-.114	-2.04	-.781
IMAGE				-.303	-.717	-.285	-.382
COLCURR				2.75	1.80	2.46	1.73
EDUC					3.04*	--	2.88*
COLIMAGE						-2.09	-2.15
COLGPA						2.48*	1.91*
BUSINESS						-.845	1.75
ENGINEER						.651	2.84
HONORS						-.207	-.924
SELECT						.219	.143
R^2	.094	.106	.109	.164	.228	.201	.246

TABLE 6

WITHIN HIGH SCHOOL REGRESSION MODEL OF EARNINGS:
COLLEGE GOERS WITH PAIRWISE DATA PRESENT (N=525)

Predetermined Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MOMED	64.	58.	57.	66.	96.	97.	101.	67.	76.
FAED	75.	57.	67.	60.	54.	56.	51.	60.	47.
FAOCC	-14.	-17.	-16.	-14.	-16.	-18.	-18.	-14.	-15.
PARINC	.081	.088	.090	.094*	.075	.075	.077	.094*	.098*
ACQUIS	366.	225.	245.	245.	278.	274.	275.	245.	249.
CATHOL	765.	916.	893.	1085.	1040.	997.	1009.	1082.	1110.
JEWISH	2738.*	2692.*	2680.*	2661.*	2916.*	2816.*	2796.*	2651.*	2612.*
ABL	34.	20.	30.	-7.	-22.	-26.	-25.	-8.	-4.
PEER		14.	76.	63.	8.	-.368	-4.	61.	50.
PAR		1141.*	1239.*	1253.*	1309.*	1310.*	1304.*	1253.*	1245.*
TEACH		-169.	-124.	-108.	49.	47.	51.	-109.	-96.
EDEXP			-325.	-306.	-338.	-353.	-357.	-307.	-315.
OCCASP			-5.	-9.	-7.	-7.	-7.	-9.	-9.
COURSE				99.	75.	74.	70.	99.	89.
STAND				181.	66.	44.	37.	178.	157.
VOCCUR				211.	30.	82.	91.	214.	227.
IMAGE				-128.	-158.	-161.	-159.	-129.	-119.
COLCURR				-380.	-259.	-289.	-301.	-384.	-410.
COLIMAGE					-16.	-22.	-11.	--	--
COLGPA					321.	299.	288.	--	--
BUSINESS					2168.*	2262.*	2243.*	--	--
ENGINEER					2548.*	2629.*	2606.*	--	--
HONORS					-38.	-65.	-58.	--	--
SELECT					42.	38.	38.	--	--
EDUC						111.	91.	9.	-38.
OCC							6.		14.
R^2	.059	.079	.081	.089	.150	.151	.152	.089	.091

References

Alexander, K.L., M. Cook, and E. McDill. 1978. "Curriculum Tracking and Educational Stratification." American Sociological Review, Forthcoming.

Alexander, K.L., and B.K. Eckland. 1975. "Basic Attainment Process: A Replication and Extension." Sociology of Education 48: 457-495.

Alexander, K.L., and B.K. Eckland. 1977. "High School Context and College Quality: Institutional Constraints in Educational Stratification." Social Forces 56: 166-188.

Alexander, K.L., B.K. Eckland, and L.J. Griffin. 1975. "The Wisconsin Model of Socioeconomic Achievement: A Replication." American Journal of Sociology 81: 324-342.

Alexander, K.L., and E.L. McDill. 1976. "Selection and Allocation Within Schools: Some Causes and Consequences of Curriculum Placement." American Sociological Review 41: 963-980.

Alwin, D.F. 1974. "College Effects on Educational and Occupational Attainments." American Sociological Review 39: 210-223.

Alwin, D.F. 1976a. "Assessing School Effects: Some Identities." Sociology of Education 49: 294-303.

Alwin, D.F. 1976b. "Socioeconomic Background, Colleges, and Post-Collegiate Achievements." Pp. 343-372 in Schooling and Achievement in American Society, edited by W.H. Sewell, R.M. Hauser, and D.L. Featherman. New York: Academic Press.

Alwin, D.F., R. Hauser, and W. Sewell. 1975. "Colleges and Achievement." Pp.113-142 in Education, Occupation, and Earnings: Achievement in the Early Career, edited by W. H. Sewell and R.M. Hauser. New York: Academic Press.

Astin, A.W. 1965. Who Goes Where to College? Chicago: Social Science Research Associates, Inc.

Baker, S.H., and B. Levenson. 1976. "Earnings Prospects of Black and White Working-Class Women." Sociology of Work and Occupations 3: 123-150.

Bell, D. 1973. The Coming of Post-Industrial Society. New York: Basic.

Berg, I. 1970. Education and Jobs: The Great Training Robbery. New York: Praeger.

Bielby, W.T., R.M. Hauser, and D.L. Featherman. 1976. "Response Errors of Nonblack Males in Models of the Stratification Process." Pp. 227-251 in Latent Variables in Socioeconomic Models, edited by D.J. Aigner and A.S. Goldberger. Amsterdam: North Holland.

Bowles, S. 1972. "Schooling and Inequality from Generation to Generation." Journal of Political Economy 80: S219-S251.

Bowles, S. 1977. "Unequal Education and the Reproduction of the Social Division of Labor." Pp. 137-153 in J. Karabel and A.H. Halsey (eds.), Power and Ideology in Education. New York: Oxford.

Bowles S. and H. Gintis. 1973. "IQ and the U.S. Class Structure." Social Policy 3: 65-96.

Bowles, S. and H. Gintis. 1976. Schooling in Capitalist America. New York: Basic.

Clark, B. 1962 Educating the Expert Society. San Francisco: Chandler.

Coleman, J.S., E.Q. Campbell, C.J. Hobson, J. McPartland, A. Mood, F.D. Weinfield, and R.L. York. 1966. Equality of Educational Opportunity. Washington, D.C.: U.S. Government Printing Office.

Dreeban, R. 1967. "The Contribution of Schooling to the Learning of Norms." Harvard Educational Review 37: 211-237.

Duncan, O.D. 1969 "Inheritance of Poverty or Inheritance of Race?" Pp. 85-110 in On Understanding Poverty, edited by D.P. Moynihan. New York: Basic Books.

Edwards, R. 1976. "Individual Traits and Organizational Incentives: What Makes a 'Good' Worker?" Journal of Human Resources 11: 51-68.

Featherman, D.L. 1971.. "The Socioeconomic Achievement of White Religio-Ethnic Subgroups: Social and Psychological Explanations." American Sociological Review 36: 207-222.

Freeman, R.B. 1976. The Over-Educated American. New York: Academic Press.

Galbraith, J.K. 1967. The New Industrial Society. New York: Houghton-Mifflin.

Gintis, H. 1971. "Education, Technology, and the Characteristics of Worker Productivity." American Economic Review 61: 266-279.

Gordon, D. 1972. Theories of Poverty and Underemployment. Lexington, Mass.: D.C. Heath and Company.

Griffin, L.J. 1976. "Specification Biases in Estimates of Socioeconomic Returns to Schooling." Sociology of Education 49: 121-139.

Griffin, L.J. 1978. "On Estimating the Economic Value of Schooling and Experience: Some Issues in Conceptualization and Measurement." Forthcoming. Sociological Methods and Research.

Hauser, R.M. 1971. Socioeconomic Background and Educational Performance. Published by the Arnold M. and Caroline Rose Monograph Series, American Sociological Association.

Hauser, R.M., W.H. Sewell, and D.F. Alwin. 1976. "High School Effects on Achievement." Pp. 309-342 in Schooling and Achievement in American Society, edited by W.H. Sewell, R.M. Hauser, and D.L. Featherman. New York: Academic Press.

Heyns, B. 1974. "Social Selection and Stratification in Schools." American Journal of Sociology 79: 1434-1451.

Hu, T., M. Lee, and E. Stromsdorfer. 1971. "Economic Returns to Vocational and Comprehensive High School Graduates." Journal of Human Resources 6: 25-50.

Inkeles, A. 1966. "Social Structure and the Socialization of Competency." Harvard Educational Review 36:

Jencks, C. and M. Brown. 1975. "The Effects of High Schools on Their Students." Harvard Educational Review 45: 273-324.

Jencks, C., M. Smith, H. Ackland, M. Bane, D. Cohen, H. Gintis, B. Heyns and S. Michelson. 1972. Inequality: A Reassessment of the Effect of Family and Schooling in America. New York: Harper and Row.

Johnson, G. and F. Stafford. 1973. "Social Returns to Quantity and Quality of Schooling" Journal of Human Resources 8: 139-155.

Journal of Human Resources. 1968. "Vocational Education: A Symposium."

Kerckhoff, A. 1976. "The Status Attainment Process: Socialization or Allocation?" Social Forces 55: 368-381.

Klitgaard, R., and G. Hall. 1975. "Are There Unusually Effective Schools?" Journal of Human Resources 10: 90-106.

Layard, R., and G. Psacharopoulos. 1974. "The Screening Hypothesis and the Returns to Education." Journal of Political Economy 82: 983-998.

Link, C., and E. Ratledge. 1975. "Social Returns to Quantity and Qaulity of Education: A Further Statement." Journal of Human Resources 10: 78-89.

Mincer, J. 1974. Schooling, Experience, and Earnings. New York: National Bureau of Economic Research.

Moore, W. 1969. "Occupational Socialization." Pp. 861-883 in D. Goslin (ed.), Handbook of Socialization Theory and Research. Chicago: Rand McNally.

Morgenstern, R. 1973. "Direct and Indirect Effects on Earnings of Schooling and Socio-Economic Background." Review of Economics and Statistics 55: 225-233.

Mosteller, F. and D.P. Moynihan. 1972. On Equality of Educational Opportunity. New York: Vintage Books.

Parnes, H. and A. Kohen. 1975. "Occupational Information and Labor Market Status: The Case of Young Men." Journal of Human Resources 10: 44-55.

Parsons, T. 1959. "The School Class as a Social System." Harvard Educational Review 29: 297-318.

Reed, R. and H. Miller. 1970. "Some Determinants of Variation in Earnings for College Men." Journal of Human Resources 5: 177-190.

Sewell, W.H., A. Haller, and A. Portes. 1969. "The Educational and Early Occupational Attainment Process." American Sociological Review 34: 82-92.

Sewell, W.H. and R.M. Hauser. 1975. Education, Occupation, and Earnings: Achievement in the Early Career. New York: Academic Press.

Solmon, L. 1975. "The Definition of College Quality and Its Impact on Earnings." Explorations in Economic Research 2: 537-588.

Solmon, L., and P. Wachtel. 1975. "The Effects on Income of Type of College Attended." Sociology of Education 48: 75-90.

Spaeth, J.L. 1970. "Occupational Attainment among Male College Graduates." American Journal of Sociology 75: 632-644.

Stolzenberg, R. 1975. "Occupations, Labor Markets, and the Process of Wage Attainment." American Sociological Review 40: 645-665.

Treiman, D.J., and K. Terrell. 1975. "Sex and the Process of Status Attainment: A Comparison of Working Women and Men." American Sociological Review 40: 174-200.

Wachtel, P. 1975. "The Effect of School Quality on Achievement, Attainment Levels, and Lifetime Earnings." Explorations in Economic Research 2: 502-536.

Wachtel, P. 1976. The Effect on Earnings of School and College Investment Expenditures." Review of Economics and Statistics 63: 326-331.

Wales, T. 1973. "The Effect of College Quality on Earnings: Results from the NBER-Thorndike Data." Journal of Human Resources 8: 306-317.

Weisbrod, B.A. and P. Karpoff. 1968. "Monetary Returns to College Education, Student Ability, and College Quality." Review of Economics and Statistics 50: 491-497.

Wright, E. and L. Perrone. 1977. "Marxist Class Categories and Income Inequality." American Sociological Review 42: 32-55.